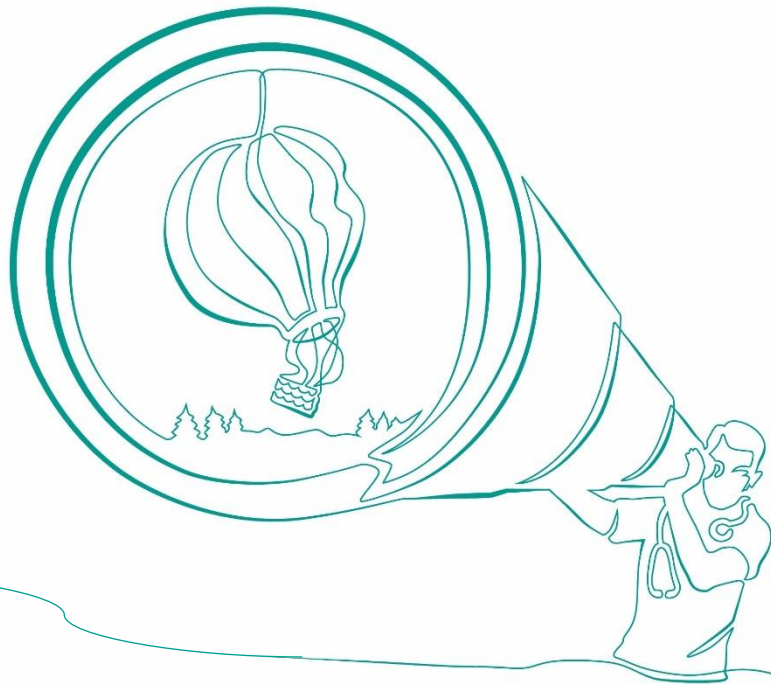


Case Study / Clinical Evidence

Asthma

Improved condition control, fewer hospital admissions

A summary of evidence from independent clinical studies proves that Florence activates patients resulting in lasting health benefits while substantially reducing hospital admissions and saving clinical time.



Intelligent health messaging service Florence is proven to enable self-management and facilitate behavioural change in patients with asthma, resulting in freed up clinical time, fewer hospital admissions, shorter inpatient stays, and significant cost savings.

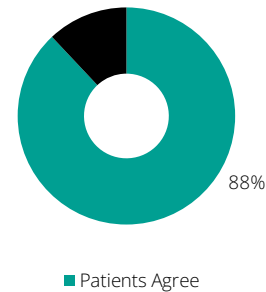
- 94% of patients agreed Florence was easy to use with 88% confirming Florence helped them to self-manage their asthma
- Average GP face-to-face contacts reduced by 68%
- Hospital admissions decreased by 75%
- "As a medical intervention, Florence enables clinicians to offer new advanced medicines"
- Low cost, yet accessible and personalised
- Cost savings of £473 to £702 per patient from saved hospital admissions

Better Self-Management, Ease of Use

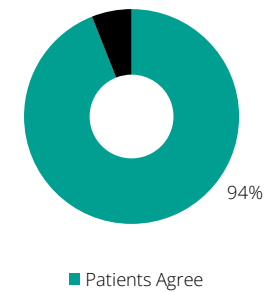
"I found it much easier to monitor my asthma on a daily basis."

A summary of six clinical studies shows the ease with which patients engage with Florence. 88% of patients agree Florence supports them and helps them track their symptoms, 94% found it easy to understand and 100% would recommend Florence to patients in a similar situation.¹ One patient reported "Flo reminds me to take my daily peak flow readings" while another that Florence "reminds me morning and night to take my preventer inhaler (Symbicort) because of the times I receive the text messages."

"Florence helps me to self manage"



"Florence is easy to understand"



Improved access to services; better condition control

"It's reassuring to know you're not alone."²

A study by NHS Highland demonstrates how patients appreciate the person-centred approach provided by Florence's twice daily responses to their texting and feel "supported" and "connected" to their trusted clinicians.

¹ Corinne Clark, NHS Highland 2021

² (Jones, April 2018)

“Asthma patients, in particular, report being far more consistent in tracking their peak flow, and they value the immediate, actionable feedback Florence provides.”³

By being shown their charts, patients can see their readings matter and affect their clinicians’ decision making, and their greater adherence to their treatment plan leads to an improvement in the stability of their condition.⁴ Patient physical and mental wellbeing is improved and their quality of life is enhanced.

One patient in Lanarkshire, whose consistent wheeze had adversely affected their work, was able to improve his peak flow by 26% within six months of starting Florence and was subsequently absent from work far fewer times.⁵ Evidence also shows how simple inhaler reminders from Florence prompt patients into a “good routine,” and timely advice educates them how to use their medication more appropriately. Within a week of messages, a 24-year-old with chronic asthma in Melbourne, Australia, was able to understand her symptoms so much better, use her inhalers correctly, and so avoid the previously frequent exacerbations.

An external evaluation for NHS Scotland showed how patients’ improved understanding and compliance with asthma protocols was reflected in an increased number of prescriptions issued to asthma patients.

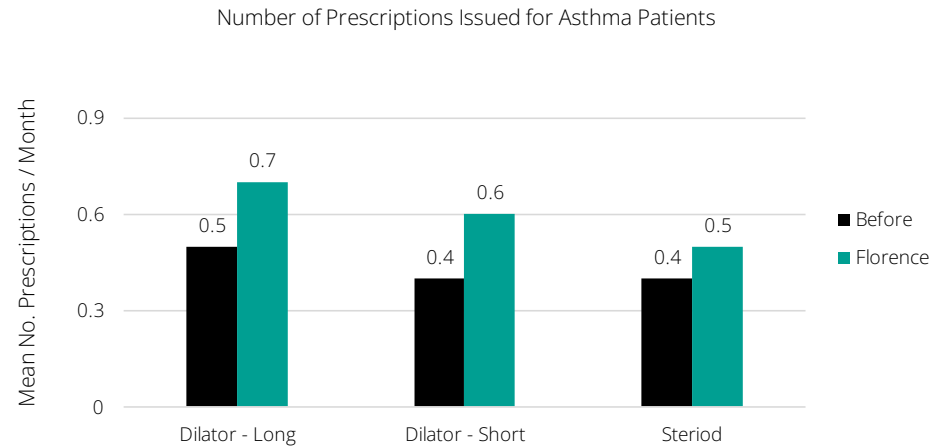


Figure 2: Number of prescriptions issued for asthma patients⁶

“It’s made me more aware in the use of my inhaler - now I use it more frequently.”⁷

³ (Wolters, 2018)

⁴ (Wolters, 2018)

⁵ (Alexander, November 2018)

⁶ (Wolters, 2018)

⁷ (Jones, April 2018)

Clinicians enabled to improve their care

Clinicians consistently report significantly improved condition control amongst telemonitored patients, with previously poorly monitored patients finally tracking their peak flow readings regularly. “Florence allows me to build up a trend of the patient’s peak flow over weeks and months, but the most fundamental thing is that Florence acts as an electronic Asthma Plan.”⁸

Through the continuous stream of data, clinicians have an enhanced ability to deliver more accurate and timely care and in an efficient and cost-effective way. By being able to monitor their patients’ adherence to the treatment plan remotely they can accurately identify whether a patients’ condition is worsening or not, whether the medication is working and even help identify which patients with severe asthma might be eligible for biologic therapy.

Clinicians particularly acknowledge the support of Florence with those patients at high risk of exacerbation, those who struggle to manage their asthma and patients who are on biologic therapies or as one clinician describes as her “difficult asthma population.”⁹ Clinicians report how these patients are cared for has changed since the implementation of Florence and how having Florence “fully embedded” into the asthma service and automatically enrolling every patient that receives biologic therapy on the protocol has enabled them to offer these new and advanced medicines.¹⁰

Decision making for patients on biologics is improved by the patient texting in results.¹¹ “Florence enables us to get an objective measure of their response to their treatment.”¹²

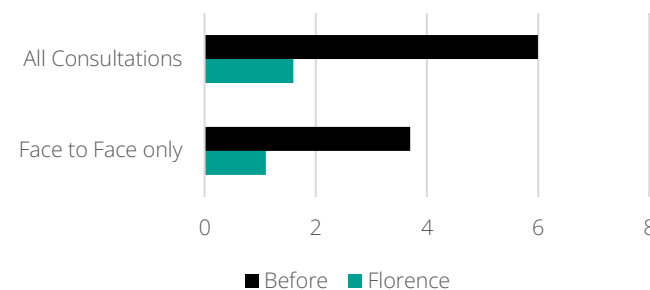
Clinicians also point to evidence that patients are reducing the severity of their acute situation by timely and appropriate use of medication. As one clinician noted, despite her asthma patient needing to be admitted with whooping cough, he had been able to “pinpoint when he was dipping because of using Florence.”

Clinical time freed up, fewer inpatient admissions

These efficiencies lead to fewer clinic appointments being required by patients, freeing up specialists to support those patients on biologic therapies. Dr Wolter’s external evaluation for NHS Scotland stated 5 out of 9 patients needed fewer face to face contacts while using Florence.¹³

“Patients are attending their appointments, but are needing fewer appointments, freeing up much needed clinical time.”¹⁴

GP Attendance for Asthma Related Conditions



⁸ (Jones, April 2018)

⁹ (Jones, April 2018)

¹⁰ (Jones, April 2018)

¹¹ (Alexander, November 2018)

¹² (Jones, April 2018)

¹³ (Alexander, November 2018)

¹⁴ Corinne Clark, NHS Highland 2021

“The reality of Florence surpassed my expectations. I can really see the benefits – we have all this data now. I started with twelve critical patients – they are doing so well now and are not being admitted to hospital which is phenomenal. These were the patients I was losing sleep over.”¹⁵

For patients recently discharged from hospital, clinicians have used Florence to schedule appropriately timed follow up appointments, reducing the risk of readmission. However, clinicians report their critical patients have fewer or no hospital admissions after starting Florence.

An evaluation of Florence for NHS Highland reported a 75% reduction in asthma related hospital admissions for patients with the average number of bed days per half year decreasing from 52 to 15.¹⁶ The impact on hospital admissions for other conditions was also an impressive 40% showing the knock-on effect on patients’ general physical wellbeing and ability to self-manage.

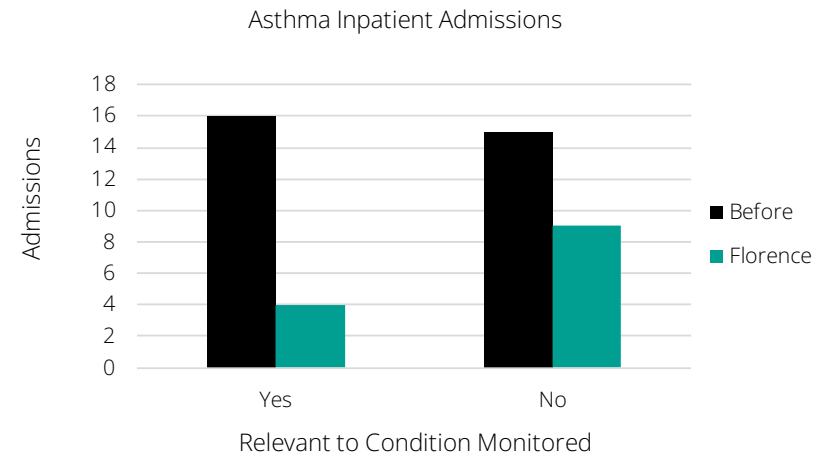


Figure 3: Total number of inpatient admissions

Even when patients need to be admitted they were reported to have “acted appropriately when there was a deterioration in their symptoms and sought urgent medical attention in a timely manner.”¹⁷ By patients acting earlier, fewer emergency services are needed, significant cost savings are made, and importantly the risk of asthma related mortalities is significantly reduced.

“Patients who are using Florence are not waiting at home when something goes wrong, so we’re not having to send out an ambulance to them”¹⁸

¹⁵ (Jones, April 2018)

¹⁶ (Wolters, 2018)

¹⁷ (Jones, April 2018)

¹⁸ (Jones, April 2018)

Costs saved, pressure on emergency services reduced

While to date there has not been an economic evaluation of the effect of Florence on asthma patients, using the data from the evaluation undertaken for NHS Scotland we can estimate that the costs savings are significant given the reduced inpatient admissions, fewer total bed days, freed up clinical time, and reduced pressure on emergency services.

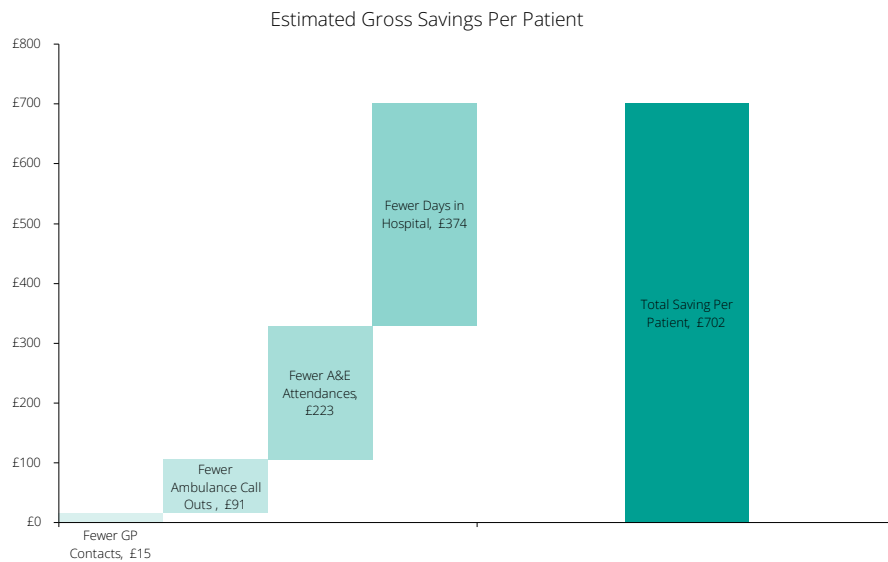


Figure 4: Estimated Gross Savings Per Patient

Looking at the saved clinical time on face to face and applying a conservative estimate of £39.23 for a nine-minute consultation with a GP in 2020 (King's Fund) an average estimate of £15.26 was saved per patient during the clinical study.

The same evaluation report showed a 75% reduction in hospital admissions amongst a cohort of 29 asthma patients for asthma related conditions, and a 58% overall reduction or 18 hospital admissions avoided.

Comparing the cost of £25 per patient for enrolling them on Florence and applying 2020 NHS cost assumptions for A&E admissions, ambulance call outs and the national average of £602 for a non-elective short stay, an estimated £473.33 - £702.36 of cost savings per patient are made.¹⁹

¹⁹ (Curtis & Burns, 2020)

References

- Alexander, D. H., November 2018. [Towards scaling up home and mobile health monitoring 2015-18](#), s.l.: Scottish Government.
- Clark, S. & Birch-Jones, J., 2013-14. [Flo Simple Health Evaluation Report](#), Nottinghamshire: s.n.
- Cund, A., Birch-Jones, J., Kay, M. & Connolly, P., 2015. [Self-management: keeping it simple with 'Flo'](#). *Nursing: Research & Reviews*, Vol 5, 2 March, p. 49—55.
- Jones, F., 2018. [Evaluation of the use of Florence within NHS Highland](#). s.l.: s.n.
- Milligan, P. C. et al., July 2018. [LCIA Bed Test: Evaluation Report](#), s.l.: Lancaster University.
- Nils Michael, C. B. H. A., July 2019. [Home and Mobile Health Monitoring Evaluation – Economic Case Studies](#), s.l.: Scottish Government.
- Wolters, D. M., 2018. [Service Evaluation of Three Telehealth Services for Monitoring Patients with Asthma, COPD, and Heart Failure](#), s.l.: s.n.

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